Afzelia xylocarpa

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Afzelia xylocarpa (Kurz) Craib

Taxonomy and nomenclature

Family: Fabaceae – Caesalpinioideae
Synonyms: *Afzelia siamica* Craib., *Pahudia cochinchinensis* Pierre, *Pahudia xylocarpa* Kurz.
Vernacular/common names: Mai te kha (Laos); go do (Vietnam); beng (Cambodia); makha-mong (Thailand).

Distribution and habitat

The species is native to Cambodia, Laos, Myanmar, Thailand and Vietnam. In the natural area of distribution, it grows within an altitude range of 100 - 650 m in areas with uniform rainfall regime, 1000 - 1500 mm/year, a dry season of 5-6 months, mean annual temperature of 20 - 32ºC and an absolute minimum temperature of 10ºC.

High levels of exploitation and habitat loss is threatening the species and large trees are scarce and hard to find. It is listed as an endangered species on the IUCN *World List of Threatened Trees.*

Uses

The wood is highly valuable and used for many purposes, including high quality furniture, wood carving, and house construction. The bark is used for tanning animal skins and the fatty cotyledons of young seeds are edible. It has good potential for timber production but the supply is limited and there is need for research on improvement and management. It is nitrogen fixing and suitable in agroforestry and for soil improvement. Planting is carried out only on a very small scale, mainly for genetic conservation purposes.

Botanical description

Tree, up to 30 m. The stem has a tendency to be crooked and forked and often produces buttresses. Leaves compound with 3-5 pairs of leaflets; each leaflet 5-9 cm x 4-5 cm, glabrous. Flowers small, in panicles, with 7-8 stamens up to 3 cm long.

Fruit and seed description

Fruit: woody pod, 15-20 cm long, 7-9 cm wide. The pods are dehiscent but can remain for a long time on the tree before they open.
Seed: large, shiny black or dark brown, seed coat thick; aril large, situated at radicle end, yellow when dry. There are 110-160 seeds per kg.

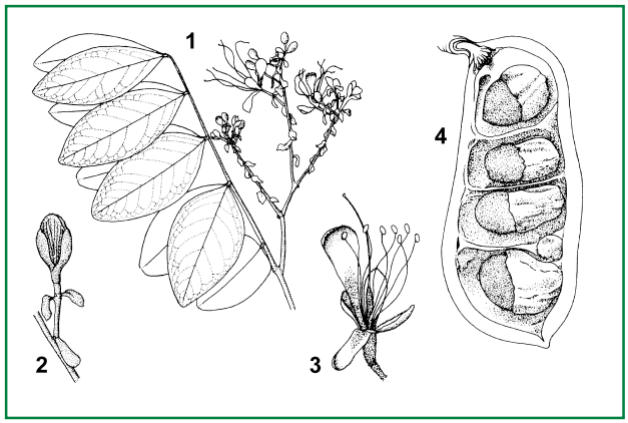
Fowering and fruiting habit

In Vietnam it flowers in March-April and fruiting is in September-December. There is a masting period every two years.

Harvest

The seeds are mature when the pod has turned brown and the seeds are hard and dark coloured.

The fruits can be collected from the tree by climbing or from covers on the ground after shaking the branches.



1, Flowering twig; 2, flower bud; 3, flower; 4, open pod with seeds. From: Plant Resources of Southeast Asia 5:1.

Processing and handling

After collection the pods are dried in the sun on a tarpaulin until they have all opened. The seeds can be extracted by shaking or beating the fruits in a bag.

It is uncertain whether it is necessary to remove the aril before storage to avoid fungal attacks. If the seed is stored with the aril, it is especially important to make sure the seeds are well dried. Removal of the aril will reduce the bulk with about 25%.

Storage and viability

The seeds are orthodox and should be stored at 8-9% moisture content. From Vietnam it has been reported that at room temperature the seeds can only be expected to store for one year while cold storage at 5-10°C can prolong storage to 2-3 years.

Dormancy and pretreatment

The seedcoat of this species is so hard that pretreatment with boiling water may not be sufficient to break the dormancy. Furthermore, the large aril delays germination and must be removed. Using a sharp knife, it is possible to cut off the aril together with a small chip of the seedcoat but care must be taken not to damage the radicle. If the seed coat is not scarified while removing the aril, the seed should be nicked at the opposite end. After cutting, the seeds are soaked in water for 12 hours before sowing.

Naturally occurring tree in a national park, north-eastern Thailand. Photo: Somyos Kijkar.

Sowing and germination

Planting stock or stumps are normally used for stand establishment. It can be propagated vegetatively by air layering, cuttings or grafting.

Phytosanitary problems

The seeds are susceptible to insect attacks.

Selected readings

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